TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE BOISE, IDAHO SOIL CONSERVATION SERVICE

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This technical note is compiled from various research completed throughout the Intermountain Region.

VEGETATIVE AND REPRODUCTIVE GROWTH OF BLUEBUNCH WHEATGRASS

Recent studies have been completed on vegetative and reproductive growth of bluebunch wheatgrass. These latest studies were conducted in British Columbia and generally support earlier studies in other parts of the Intermountain Region.

Bluebunch wheatgrass was a major component of the plant community on many rangelands of the Intermountain Region. Years of grazing, sometimes overgrazing, and many times grazing at the improper time for plant maintenance, have removed the bluebunch wheatgrass component from vast acreages of our rangelands in Idaho. Perhaps a better knowledge of plant growth and plant response to temperature and other environmental factors could have prevented some of these deteriorated bluebunch wheatgrass plant communities.

Initiation of growth of bluebunch wheatgrass occurs from beginning of March to mid April throughout Idaho. Occasional pale shoots have been noticed in plant crowns when snow was present and the ground was still frozen. General initiation of first leaf growth occurs when soil temperatures reach 2.0° C at 10 cm soil depth and measurable production corresponds to soil temperature of 6.0° C at 10 cm soil depth. Further growth acceleration occurs until the optimum of 20-25° C soil temperature is reached, providing other environmental factors remain favorable.

It has been demonstrated that fully grown plants reduce their transpiration and photosynthetic rates in response to lower temperatures. Thus should soil temperatures approach 0° C following initiation of new leaf growth, plants would become quiescent and remain in that state until soil temperatures had again warmed. This phenomenon could substantially reduce available forage quantities and result in overgrazed rangelands unless precautions were taken and livestock removed or other forage made available.

Growth of bluebunch wheatgrass ceases for the season when moisture becomes limiting and higher temperatures occur. This may happen from May to July or August in Idaho. Fall regrowth appears to be unpredictable from all studies.

Reproductive characteristics tend to be extremely variable among plants and years, with no apparent relationship to tiller numbers or basal area. It is generally felt that grass populations could not be sustained from seed production if improper grazing practices are allowed.

From these studies, it appears that the spring growth and development of bluebunch wheatgrass is dependent on soil temperatures and local weather conditions. Management for optimum sustained production thus requires specific knowledge of the current years' stage of plant development at each grazing site. Coupled with knowledge of plant response to grazing intensities at various growth stages, these understandings should allow for improvement in many of our bluebunch wheatgrass rangelands.

References:

Jounal of Range Management (various Authors)

Journal of Range Management, Vol. 34 No. 1, "Vegetative and Reproductive Growth of Bluebunch Wheatgrass in Interior British Columbia," Quenton, McClean, and Stout.

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